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Draft report

VI. Space-system-based disaster management support

1. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 8, "Space-system-based disaster management support".

2. The representatives of China, Colombia, Egypt, Germany, India, Japan, Pakistan, the Republic of Korea, Saudi Arabia and the United States made statements under agenda item 8. A statement was made under the item by the representative of Chile on behalf of the Group of Latin American and Caribbean States. A representative of the Office for Outer Space Affairs made a statement on the activities of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER). During the general exchange of views, statements relating to the item were also made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Risk management using space tools: the Algerian experience", by the representative of Algeria;

(b) "Emergency prevention and response with the application of space observation systems", by the representative of the Russian Federation;

(c) "The Italian COSMO-SkyMed constellation support for disaster management and emergency response", by the representative of Italy;

(d) "Progress of space technology applications for disaster management in China", by the representative of China;

(e) "The activations in 2014 of the International Charter on Space and Major Disasters", by the representative of France.

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4. The Subcommittee had before it the following:

(a) Report on the United Nations/Germany Expert Meeting on the Use of Space-based Information for Flood and Drought Risk Reduction (A/AC.105/1074);

(b) Report on the knowledge portal of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response: recent advances (A/AC.105/1075);

(c) Report on the United Nations International Conference on Space-based Technologies for Disaster Management: Multi-hazard Disaster Risk Assessment (A/AC.105/1076);

(d) Report on activities carried out in 2014 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/1078);

(e) Report on joint activities carried out in 2014 by the regional support offices of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/1079);

(f) United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER): indicative workplan for 2015 (A/AC.105/C.1/2015/CRP.13);

(g) Earth observations in support of national strategies for disaster-risk management: a synergy framework for the integration of Earth observation technologies into disaster risk reduction (A/AC.105/C.1/2015/CRP.35).

5. The Subcommittee expressed its appreciation for the efforts of the Office for Outer Space Affairs to bring the reports on the activities of UN-SPIDER in 2014 to its attention, and noted with satisfaction the progress made with regard to most activities planned in the framework of the programme, including the continuing support provided through the programme for emergency response efforts.

6. The Subcommittee noted that in 2014, UN-SPIDER, with support from its network of partners, had carried out missions for advisory support in Bhutan, El Salvador, Kenya, Mongolia and Zambia. The Subcommittee noted with gratitude the capacity-building (training) sessions held in China, Nepal, Sri Lanka and Viet Nam as follow-up to the UN-SPIDER technical advisory missions carried out in previous years.

7. The Subcommittee also acknowledged with appreciation the new developments with respect to the UN-SPIDER knowledge portal (www.un-spider.org), in particular the new improved interface, as well as the availability of French and Spanish versions of the portal.

8. The Subcommittee took note of the planned technical advisory missions to be undertaken by UN-SPIDER in 2015 in Cambodia, Honduras, the Lao People's Democratic Republic, Nepal and the United Arab Emirates and noted the synergies and cross-border actions facilitated by the UN-SPIDER programme, for example, a regional training workshop on space-based information for the estimation of damage and losses, to be held in Bangladesh in April 2015. It also took note of other capacity-building sessions planned, subject to the availability of resources in some cases, in Algeria, Bhutan, Indonesia, Kenya, the Sudan and Latin America.

9. The Subcommittee welcomed the planned outreach activities of UN-SPIDER and its developing partnerships with more than 20 United Nations entities, international organizations and governments to continue promoting the use of space-based tools and information in global and regional initiatives, such as the Third World Conference on Disaster Risk Reduction, to be held in Japan in March 2015, and their use in the context of the post-2015 development agenda. It also noted that complementary relationships between UN-SPIDER and other existing initiatives, including Sentinel Asia, should be further established.

10. The Subcommittee noted with satisfaction the ongoing activities of Member States that were contributing to increasing the availability and use of space-based solutions in support of disaster management and that were supporting the UN-SPIDER programme, through the following activities, among others: the availability of the high-definition television camera system on the International Space Station, Kibo HDTV-EF, for emergency observation in the framework of the International Charter on Space and Major Disasters; the support by the DLR Center for Satellite-based Crisis Information (ZKI) of several operational mapping and analysis tasks for disaster events worldwide, including the contribution of radar satellite data for 35 of the activations of the International Charter on Space and Major Disasters in 2014; the promotion, through the International Charter on Space and Major Disasters and with the support of UN-SPIDER, of the universal access initiative; the establishment of national and regional data portals for the dissemination of near-real-time information, such as the Pakistan Flood Watch web portal, as well as the production of risk assessments and mapping based on space-based information; the support provided through the United States-funded Famine Early Warning Systems Network and the Regional Visualization and Monitoring System (SERVIR) programmes in the Himalayas and Africa; and many further examples of products defined for specific and sectoral end users at the national level.

11. The Subcommittee noted that the International Charter on Space and Major Disasters had been activated more than 440 times since its creation and 40 times alone in 2014. The Subcommittee also noted that Sentinel Asia had been activated 18 times for disasters including floods, earthquakes, volcanic eruptions, landslides and typhoons in Asia.

12. Some delegations expressed the view that partnerships, international agreements and full and open data-sharing arrangements such as in the context of the Group on Earth Observations (GEO) were becoming increasingly important to ensure the effective distribution of space-based data and their use by emergency managers and other responsible authorities worldwide. Various services provided by space agencies in the form of current satellite imagery or information ready for use in geographic information systems (GIS) were noted.

13. The view was expressed that space-based data could be beneficial in many more disaster situations, not only sudden-onset disasters but also slow-onset disasters, and that more support was needed to make space-based data widely available for monitoring unusual situations such as locust invasions or even terrorism-affected events.

14. The Subcommittee noted that the Office for Outer Space Affairs had hosted the sixth annual meeting of the regional support offices of UN-SPIDER in Vienna

on 5 and 6 February 2015 to review the joint activities implemented in 2014 and to develop a joint workplan for 2015.

15. The Subcommittee noted with satisfaction the signing on 5 February 2015 of an agreement between the Office for Outer Space Affairs and the International Water Management Institute headquartered in Sri Lanka for the creation of a new regional support office of UN-SPIDER.

16. The Subcommittee welcomed the fact that the now 17 regional support offices of UN-SPIDER continued to successfully contribute to the activities of UN-SPIDER (see www.un-spider.org/network/regional-support-offices for further information).

17. The Subcommittee took note of the expert and other in-kind contributions made by Member States and regional support offices in 2014 to all UN-SPIDER technical advisory missions, as well as their sharing of experiences with other interested countries. Such contributions were considered to be especially valuable given the decrease in voluntary cash contributions made to the UN-SPIDER programme.

18. The Subcommittee noted with appreciation the voluntary contributions that were being made by Member States, including the cash contributions from China and Germany, and encouraged Member States, on a voluntary basis, to provide UN-SPIDER with all necessary support, including increased financial support, to enable it to better respond to Member States' requests for assistance and fully carry out its workplan for the next biennium.

VII. Recent developments in global navigation satellite systems

19. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 9, "Recent developments in global navigation satellite systems", and reviewed issues related to the International Committee on Global Navigation Satellite Systems (ICG), the latest developments in the field of global navigation satellite systems (GNSS) and new GNSS applications.

20. The representatives of Brazil, Canada, China, Colombia, Egypt, India, Italy, Japan and the United States made statements under agenda item 9. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

21. The Subcommittee heard the following scientific and technical presentations:

(a) "Opportunities of the Krasnoyarsk region in the sphere of outer space and related technologies", by the representative of the Russian Federation;

(b) "GLONASS: current status, modernizations and use", by the representative of the Russian Federation;

(c) "Update on the BeiDou Navigation Satellite System" by the representative of China.

22. The Subcommittee had before it the following:

(a) Note by the Secretariat on the ninth Meeting of the International Committee on Global Navigation Satellite Systems (A/AC.105/1083);

(b) Report of the Secretariat on activities carried out in 2014 in the framework of the workplan of the International Committee on Global Navigation Satellite Systems (A/AC.105/1084);

(c) Report on the United Nations/Abdus Salam International Centre for Theoretical Physics Workshop on the Use of Global Navigation Satellite Systems for Scientific Applications (A/AC.105/1087).

23. The Subcommittee was informed that the Office for Outer Space Affairs, as the executive secretariat of ICG, handled coordination for the planning of meetings of ICG and its Providers' Forum in conjunction with sessions of the Committee and its subsidiary bodies. It was noted that the executive secretariat also maintained a comprehensive information portal for ICG and users of GNSS services and continued to play an active role in promoting international cooperation to use the capabilities of GNSS to support sustainable development.

24. The Subcommittee noted that the Office for Outer Space Affairs, in the framework of the ICG programme on GNSS applications, organized activities that focused on building capacity in satellite navigation science and technology. Those activities included sessions on space weather and ionospheric research in an effort to initiate space science research programmes in developing countries and to support existing projects in the field of ionospheric research using GNSS techniques.

25. The Subcommittee also noted that the regional centres for space science and technology education, affiliated to the United Nations, had started to use the GNSS education curriculum developed by ICG and its Providers' Forum. Those centres, which also served as information centres for ICG and its Providers' Forum, provided knowledge on current and future developments of satellite navigation systems, including the user segment (receiver), as well as the applications of GNSS technology.

26. The Subcommittee noted that the United Nations/Abdus Salam International Centre for Theoretical Physics Workshop on the Use of Global Navigation Satellite Systems for Scientific Applications had been held in Trieste, Italy from 1 to 5 December 2014. The main objective of the Workshop had been to provide a forum in which participants could share their technical expertise and experiences in science applications of GNSS.

27. The Subcommittee noted with satisfaction that the ninth meeting of ICG and the thirteenth meeting of the Providers' Forum, organized by the European Commission and the European GNSS Agency on behalf of the European Union, had been held in Prague from 10 to 14 November 2014, hosted by the European GNSS Agency. It was noted that the tenth meeting of ICG would be organized by the United States and held in Boulder, Colorado, United States, from 1 to 6 November 2015. The Subcommittee also noted the expression of interest by the Russian Federation in hosting the eleventh meeting of ICG, in 2016.

28. The Subcommittee noted that the ICG working groups focused on the following issues: compatibility and interoperability; enhancement of the performance of GNSS services; information dissemination and capacity-building; and reference frames, timing and applications. The Subcommittee also noted that the working groups had made substantive progress in furthering the workplans of ICG and its Providers' Forum.

29. The Subcommittee noted that the Providers' Forum had considered Medium-Earth Orbit Search and Rescue (MEOSAR) as an application for use in the International Satellite System for Search and Rescue (COSPAS-SARSAT). It was noted that MEOSAR was the next generation of satellite-aided search and rescue and was in the testing phase.

30. The Subcommittee noted that 2015 marked the tenth anniversary of the establishment of ICG under the auspices of the United Nations. It was highlighted that ICG had been highly successful in bringing together the providers and users of GNSS to promote its use and integration into infrastructure, particularly in developing countries.

31. The Subcommittee commended the Office for Outer Space Affairs for its outstanding performance in its capacity as the executive secretariat of ICG and its Providers' Forum, and expressed appreciation for the efforts of the Office in bringing attention to the benefits of GNSS throughout the world, particularly for developing nations.

32. The Subcommittee noted with appreciation the financial contributions made by the United States and the European Commission to the Office for Outer Space Affairs in support of GNSS-related activities, ICG and its Providers' Forum.

33. The Subcommittee noted that the Global Positioning System (GPS) of the United States continued to provide a reliable and accurate space-based positioning, navigation and timing service to the international community. It was noted that the constellation continued to fly in a 24+3 constellation to provide excellent coverage and worldwide availability. The entire GPS constellation continued performing at exceptional levels, with an average user range error of 80 centimetres. The Subcommittee also noted that the United States intended to continue improving the accuracy and availability of GPS through improved satellite and clock performance and modernized satellites.

34. The Subcommittee noted that Italy was one of the major players involved in the European satellite navigation programmes: the European Geostationary Navigation Overlay Service (EGNOS) and the Galileo satellite navigation system. It was noted that Italy was developing pre-operational projects to pave the way for the full exploitation of the potential of those systems and hosted one of the four control centres of EGNOS and one of the two control centres of Galileo.

35. The Subcommittee noted that the Russian Federation's Global Navigation Satellite System (GLONASS) constellation currently consisted of 28 satellites: 26 GLONASS-M satellites and 2 GLONASS-K satellites, which was a new generation of navigation satellite. The Subcommittee also noted that GLONASS civil services were free and unlimited globally and that the GLONASS Federal Programme was the instrument for implementing national policy on positioning, navigation and timing services. It was noted that there was international cooperation

aimed at making GLONASS an essential element of the international GNSS infrastructure, with benefits for users worldwide.

36. The Subcommittee noted that China's BeiDou Navigation Satellite System (BDS) was composed of space, ground and user segments and that it would provide four types of services: open, authorized, wide area differential and short message services. It was also noted that the BDS open service performance standard, demonstrating the commitment of the system to providing a basic performance standard for users, had been published and that the document "BDS signal-in-space interface control document: open service" had been released to publicize the second open signal B2I, and it was highlighted that BDS was to be a satellite navigation system with two civil frequencies and qualified service capabilities.

37. The Subcommittee noted that India was currently implementing its satellite navigation programme in two paths: the GPS-aided GEO-Augmented Navigation System (GAGAN), which was a satellite-based augmentation system, and the Indian Regional Navigation Satellite System (IRNSS), which was an independent regional system. It was noted that GAGAN had been established to provide increased positional accuracy for civil aviation applications and better air traffic management, and that the availability of the GAGAN signal-in-space would bridge the gap between the coverage areas of EGNOS and Japan's Multi-functional Satellite Augmentation System (MSAS), thereby offering seamless navigation to the aviation industry.

38. The Subcommittee also noted that IRNSS, consisting of a constellation of seven satellites, three in geostationary equatorial orbit and four in geosynchronous orbit (GSO), was in the implementation phase. The first three IRNSS satellites had been launched, and the IRNSS signal-in-space was being successfully broadcast and received. It was noted that the full constellation was expected to be completed by the end of 2015.

39. The Subcommittee noted that the formal operation of the Quasi-Zenith Satellite System (QZSS) of Japan was planned to begin in 2018 and that a constellation of seven satellites would be completed to improve positioning in the Asia-Pacific region. It was noted that in addition to the QZSS positioning function and its function of reinforcement of GPS, QZSS could provide a messaging service that would contribute to disaster management.

40. The Subcommittee noted with appreciation that Brazil, Canada, Colombia and Egypt had reported on their projects and activities focused on helping to bring GNSS technology to the widest possible user community, as well as the participation of international partners in those programmes.